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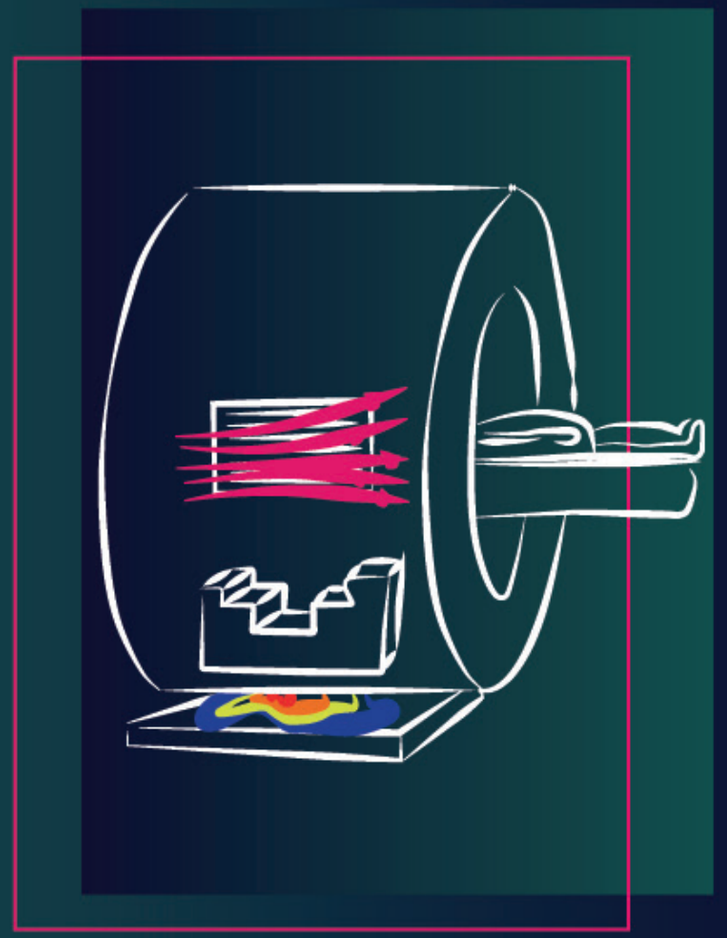
Radiotherapy treatments need safety nets to ensure a correct delivery of the prescribed dose to the delineated tumor. In our hospital, the safety net of choice for all treatments in conventional radiotherapy machines is in-vivo EPID dosimetry, which uses the dose acquired by an Electronic Portal Imaging Device (EPID) during treatment to accurately reconstruct the dose as it was delivered to the patient. This thesis aims to validate radiotherapy treatments delivered to patients on a novel system: the Unity MR-Linac. The machine, which was recently installed and became clinically functional in our department, combines a radiation source (linac) and an imaging device (MRI), and will help to more accurately irradiate tumors by means of a new range of techniques only available thanks to the image guidance of the MRI. The verification of such treatments can be performed by using images of the delivered beam captured by an EPID situated after the MRI scanner. Therefore, this project focuses on the adaptation of the already existing EPID dosimetry algorithm for conventional linacs to the new physics and design characteristics of the Unity MR-linac.

PATIENT-SPECIFIC IN-VIVO QA IN MRGRT: 3D EPID DOSIMETRY FOR THE UNITY MR-LINAC | IBAN TORRES XIRAU

PATIENT-SPECIFIC IN-VIVO QA IN MRGRT: 3D EPID DOSIMETRY FOR THE UNITY MR-LINAC



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